# COURSE SYLLABUS: PHYS2326.004.25F (FALL 2025)

## Course Information

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| *Course Number/Section* | PHYS2326.004.25F |
| *Course Title* | ELECTROMAGNETISM AND WAVES |
| *Term* | FALL 2025 |
| Classroom | SCIENCES Building lecture hall SCI 1.102 |
| *Days & Times* | Mondays and Wednesdays, 2:30 pm-3:45 pm (lectures will be recorded and posted on e-learning) |

## Professor Contact Information


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|---|---|
| *Instructor* | **Dr. Lloyd Lumata** |
| *Office Phone* | 972-883-2850 |
| *Email Address* | lloyd.lumata@utdallas.edu |
| *Office Location* | SCI 2.166 (2nd floor, Sciences Bldg.) |
| Office hours | Mon/Wed 1-2 pm (or by appointment, online) |
| *Research Website* | http://dnpnmr.weebly.com/ |
| Teaching Assistant: | TBA |
| TA consultation hrs: | TBA |

Supplementary Instruction (SI): SI leader: TBA


## Course Pre-requisites, Co-requisites, and/or Other Restrictions

Prerequisites: MATH 2419 (Calculus II) or MATH 2414 (Integral Calculus) or equivalent. Students must register for Physics Lab. No exceptions to these will be allowed without the instructor's and/or other advisor's permission. Familiarity with basic mathematics (including algebra, geometry, trigonometry and basic integral and differential calculus) is assumed.

## Course Description

Continuation of PHYS 2325. Topics include electrostatics and electromagnetics, electric field and potential, electric currents, magnetic fields, laws of Coulomb, Ampere, and Faraday, Maxwell's theory of wave propagation. Two lectures per week.

## Student Learning Objectives/Outcomes

The course is intended to develop a qualitative and quantitative picture as to how a few basic equations can explain electrical and magnetic phenomena as experienced in our scientific and daily life. Also, the course will describe how this knowledge will be put together to predict electromagnetic radiation. The outcome is to be able to apply this background and acquired problem solving techniques to problems related to the student's career choice in fields such as engineering or biomedicine. The measurement of the student's knowledge obtained from this course and his/her problem-solving capability will be primarily by the class exams.

PHYS2326 Lectures and Exam Dates

| LECTURE/EXAM | DATE (2025) | CHAPTER | TOPIC |
|---|---|---|---|
| Lecture 1 | Aug. 25 & Aug. 27 | Chapter 21 | Electric Charge and Field |
| **Labor Day** | **Sep. 01** | **No Class** | |
| Lecture 2 | Sep. 03 & Sep. 08 | Chapter 22 | Gauss's Law |
| Lecture 3 | Sep. 10 & Sep. 15 | Chapter 23 | Electric Potential |
| Lecture 4 | Sep. 17 & Sep. 22 | Chapter 24 | Capacitance & Dielectrics |
| Lecture 5 | Sep. 24 & Sep. 29 | Chapter 25 | Current, Resistance, & EMF |
| **MIDTERM 1** | **Sep. 30-Oct. 03, 2025** | **Chapters 21-24** | **Online at UTD Testing Center** |
| Lecture 5 | Sep. 24 & Sep. 29 | Chapter 25 | Current, Resistance, & EMF |
| Lecture 6 | Oct. 06 & Oct. 08 | Chapter 26 | DC Circuits |
| Lecture 7 | Oct. 13 & Oct. 15 | Chapter 27 | Magnetic Field & Forces |
| Lecture 8 | Oct. 20 & Oct. 22 | Chapter 28 | Sources of Magnetic Field |
| Lecture 9 | Oct. 27 | Chapter 29 | Electromagnetic Induction |
| **MIDTERM 2** | **Oct. 28-31, 2025** | **Chapters 25-28** | **Online at UTD Testing Center** |
| Lecture 9 | Nov. 03 | Chapter 29 | Electromagnetic Induction |
| Lecture 10 | Nov. 05 & Nov. 10 | Chapter 30 | Inductance |
| Lecture 11 | Nov. 12 & Nov. 17 | Chapter 31 | Alternating Current |
| Lecture 12 | Nov. 19 | Chapter 32 | Electromagnetic waves |
| **Thanksgiving BREAK** | **Nov. 24-30, 2025** | **No class** | **Fall Break** |
| Lecture 12 | Dec. 01 | Chapter 32 | Electromagnetic Waves |
| **FINAL EXAM** | **Dec 03, 2025** | **Chapter 29-32** | **In class at SLC 1.102** |

*Schedule may vary.*

## Recommended Textbook and Required Access Code

We will primarily follow UNIVERSITY PHYSICS, (preferably 15th Ed.; earlier versions are also fine) by Young and Freedman, publisher Pearson-Addison Wesley. If you are purchasing the book, make sure that it includes the student access kit in order to do online homework. If you already have the book and are not already registered, you will need to register at the URL www.pearsonmylabandmastering.com so that you can access the homework web site for this class.

**Topics include**:
Chap. 21. Electric Charge and Electric Field
Chap. 22. Gauss's Law
Chap. 23. Electric Potential
Chap. 24. Capacitance and Dielectrics
Chap. 25. Current, Resistance and Electromotive force
Chap. 26. Direct Current Circuits
Chap. 27. Magnetic Field and Magnetic Forces
Chap. 28. Sources of Magnetic Field
Chap. 29. Electromagnetic Induction
Chap. 30. Inductance
Chap. 31. Alternating Current
Chap. 32. Electromagnetic Waves

*Mastering Physics is mandatory for the class*. If not obtained with your text, you need to purchase the access codes online. Homework is graded and assignments will be made on-line in Mastering Physics. In order to do the homework, you must have access to the internet. The basic instructions are as follows:

To register for PHYS2326.004.25F (Fall 2025, Prof. Lloyd Lumata):

1. Go to https://mlm.pearson.com/enrollment/lumata15553
2. Sign in with your Pearson student account or create your account.
3. Select Go to my course.
4. Select PHYS 2326.004.25F (ELECTROMAGNETISM FALL 2025/PROF. LUMATA) from My Courses.

Important: Make sure you are enrolled for this course ID: **lumata15553**

Also, **make sure to use your UTD Net ID** (e.g. sxh230143) as the student ID in Mastering Physics.

Course ID: lumata15553
Course Dates: Aug. 25 – Dec. 06, 2025
Enrollment Dates: Aug. 12 – Sep. 06, 2025
Description: PHYS2326.004.25F (Fall 2025, Prof. Lumata) Electromagnetism
Course Materials: Modified Mastering Physics for University Physics with Modern Physics 15th Edition
Author(s): Young, Hugh | Freedman, Roger
Textbook ISBN-13: 9780135159705

Note: For the online homework in Mastering Physics, a maximum of 21 tries/attempts is given for problems that requires to fill in the blanks whereas for multiple choice questions, points are deducted for every incorrect attempt. Late homeworks: You can still complete and earn partial credits for late weekly homeworks. Late homeworks are deducted 1% for every hour late, and one can still earn a maximum of 50% credit for correct answers for homeworks that are late by 2 days or more.

## LECTURE NOTES

Copies of the lecture notes and lectures will be posted on eLearning (BlackBoard) that is available on the UTD home page: *https://elearning.utdallas.edu/* . Your UTD user NET ID and password will give you access to this. You are expected to check this site regularly.

## Grading Policy

Your course grade will be based on 3 major exams (2 midterm exams plus the final exam), quizzes, and homework. Each of these 3 major exams will count for 21.67% of your grade. The final exam is not cumulative. Homework will count for 20% of your grade. There will be online quizzes on e-learning almost weekly. Your weekly quiz will be given online on e-learning. Quizzes count for 10% of your grade. Attendance will count as 5% of the overall grade and will be recorded using an online code given in class.

### *Letter Grading*

| | | |
|---|---|---|
| 97-100 | % | A+ |
| 93-96.99 | | A |
| 90-92.99 | | A- |
| 87-89.99 | | B+ |
| 83-86.99 | | B |
| 80-82.99 | | B- |
| 77-79.99 | | C+ |
| 73-76.99 | | C |
| 70-72.99 | | C- |
| 67-69.99 | | D+ |
| 63-66.99 | | D |
| 60-62.99 | | D- |
| < 59.99 | | F |

**Grading criteria summary**

| | |
|---|---|
| Homework | 20% |
| Quizzes | 10% |
| Attendance | 5% |
| Midterm Exam 1 | 21.67% |
| Midterm Exam 2 | 21.67% |
| FINAL Exam | 21.67% |
| TOTAL | 100% |

Exam scores and grading will be posted on eLearning (BlackBoard) that is available on the UTD home page: *https://elearning.utdallas.edu/* .

## Course Policies

No make up exams will be given, but do speak with me if there are extenuating circumstances regarding absence for exams. You will be required to produce a medical note or other supporting documentation.

### Extra Credits for taking Pre-test and Post-test (optional)

The Physics Department at UTD encourages PHYS2326 students to take the pre- and post-tests (optional, but highly recommended) for evaluation of student academic outcome in this course in general. This is a way for our department to evaluate the progress of student learning in this course. The dates for the first quiz (pretest) and the second quiz (posttest) will be announced so the students can reserve a seat **in the Test Center.**

- The **quizzes are administered in the (proctored) Testing Center** on the first floor of the Synergy Park North 2 building (SPN2) **or in the ARC office**
- Please email Prof. Paul Macalevey (physics faculty who manages these pre- and post-tests) if you have an OSA accommodation that involves extended time for pre- and post-tests, email: paulmac@utdallas.edu . Alternatively, you can deliver printed copy of the OSA letter to Prof. Macalevey at SCI 3.168 office.

**Note:** 0.75% extra credit to the final grade will be given to a student taking the pre-test, and another extra 0.75% for the pos-test. An additional 0.5% will be added to the final grade of the student scores 50% or more for the post-test.

### AccessAbility Services

It is the policy and practice of The University of Texas at Dallas to make reasonable accommodations for students with properly documented disabilities. However, written notification from the Accessibility Resource Center (ARC) is required. If you are eligible to receive an accommodation and would like to request it for this course, please discuss it with your professor and allow one week advance notice. Students who have questions about receiving accommodations, or those who have, or think they may have, a disability (mobility, sensory, health, psychological, learning, etc.) are invited to contact ARC for a confidential discussion. ARC is located in the Student Services Building, SSB 3.200. They can be reached by phone at 972-883-2098, or by email at studentaccess@utdallas.edu

### Class Materials

The Instructor may provide class materials that will be made available to all students registered for this class as they are intended to supplement the classroom experience. These materials may be downloaded during the course, however, these materials are for registered students' use only. Classroom materials may not be reproduced or shared with those not in class, or uploaded to other online environments except to implement an approved Office of Student AccessAbility accommodation. Failure to comply with these University requirements is a violation of the Student Code of Conduct.

### Academic Integrity

The faculty expects from its students a high level of responsibility and academic honesty. Because the value of an academic degree depends upon the absolute integrity of the work done by the student for that degree, it is imperative that a student demonstrates a high standard of individual honor in his or her scholastic work.

*Academic Dishonesty*: Academic dishonesty can occur in relation to any type of work submitted for academic credit or as a requirement for a class. It can include individual work or a group project. Academic dishonesty includes plagiarism, cheating, fabrication, and collaboration/collusion. In order to avoid academic dishonesty, it is important for students to fully understand the expectations of their professors. This is best accomplished through asking clarifying questions if an individual does not completely understand the requirements of an assignment.

Additional information related to academic dishonesty and tips on how to avoid dishonesty may be found here: https://www.utdallas.edu/conduct/dishonesty/

## Comet Creed

This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:

*"As a Comet, I pledge honesty, integrity, and service in all that I do."*

## UT Dallas Syllabus Policies and Procedures

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus. Please go to http://go.utdallas.edu/syllabus-policies for these policies.

***The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.***